U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

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SODA ASH AND SODIUM SULFATE IN JANUARY 1997

Natural soda ash production in January was 866,000 metric tons, the same as the previous month's production, according to the U.S. Geological Survey. Ending inventories were estimated at 326,000 tons, a 20% increase from that of the preceding month. Wyoming trona production in January was 1,460,000 tons. Total production of chemical caustic soda as soda ash equivalent, based on data from all three producers, was 19,500 tons in January.

Apparent consumption of soda ash for December was 522,000 tons, 9% lower than the December 1995 level of 575,000 tons.

Exports and imports of soda ash in December were 367,000 tons and 9,450 tons, respectively. The preliminary yearend totals for 1996, compared with those of 1995, were as follows: production 1% higher, imports 29% higher, exports 8% higher, ending stocks 11% lower, and apparent consumption 1% lower.

Please note: Tables 1 and 5 for 1996 were revised after receipt of previously unreported data.

For further information about the conference, see pages 2-3 and contact:



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CONFERENCE REGISTRATION INFORMATION

What: First International Soda Ash Conference

When: June 10-12, 1997

Where: Western Wyoming Community College Registration: Holiday Inn, June 9,1800-2100 hours

Fee: \$150

See page 5 for registration form.

Visit our conference website at:

http://minerals.er.usgs.gov/minerals/pubs/commodity/soda_ash/isac.html

Prepared in the Industrial Minerals Section and the Data Collection and Coordination Section, March 25, 1997.

ROCK SPRINGS, WYOMING—JUNE 10 to 12, 1997



COSPONSORS:

- UNITED STATES GEOLOGICAL SURVEY
- UNITED STATES BUREAU OF LAND MANAGEMENT
- WYOMING GEOLOGICAL SURVEY

1ST INTERNATIONAL SODA ASH CONFERENCE

To commemorate the 50th anniversary of the beginning of the Wyoming natural soda ash industry, the U.S. Geological Survey, the U.S. Bureau of Land Management, and the Wyoming Geological Survey, are sponsoring a three-day international conference on soda ash to be held at the Western Wyoming Community College in Rock Springs, WY, on June 10 to 12, 1997. The meeting will include two days of formal presentations and poster sessions by some of the world's leading experts in the soda ash industry followed by a third day of field trips to see the trona mines, soda ash refineries, and local outcrops of the Green River Formation. Accomodations will be at the Holiday Inn in Rock Springs, where registration begins Monday, June 9. The conference is wide-ranging in scope covering several categories, including geology, mining, processing, markets, and environmental issues. Although the Wyoming trona district will be emphasized, papers on natural deposits elsewhere in the world are included. The speakers and titles of the papers to be presented are:

- D. Kostick, U.S. Geological Survey, History of the U.S. Soda Ash Industry
- T. Leigh, Tg Soda Ash, Inc., Overview of the Geology of the Wyoming Trona Deposits
- J. Dyni, U.S. Geological Survey, Exploration for Sodium Carbonate Deposits
- G. Smith, U.S. Geological Survey, Crystallization of Owens Lake Sodium Salts
- G. Moulton and J. Fairchild, North American Chemical Co., Economic Geology of Searles Lake
- C. Zhang, Inner Mongolia Polytechnic Univ., China, The Natural Soda Deposits of China
- C. Demirci, RTZ Group, Ankara, Turkey, Beypazari Trona Deposit
- T. Murphy, U.S. Bureau of Land Management, Terms & Conditions of the Leasing Process of Federal Land
- H. Kemp, Wyoming State land & Farm Loan Office, Leasing State Lands
- R. See and N. Brown, Union Pacific Resources, History of UPRR Trona Leasing
- W. Fisher, Consultant, Trona and Oil and Gas Leasing Conflicts
- M. Weller, Solvay Minerals, The Anomalous Zone in Bed 17 of the Solvay Mine
- R. Hughes, Solvay Minerals, Discussion of the Mine Collapse at Solvay Minerals
- R. Day, White River Nahcolite Co., Solution Mining of Colorado Nahcolite
- A. Ukidwe and H. Haynes, University of Wyoming, Solution Mining of Trona
- G. Marlatt, Consultant, Hydrocarbons Associated with Oil Shale and Trona
- W. Hazen, Hazen Laboratories, The Benetron Process
- R. Aitala, Isonex, Inc., Process Selection Criteria for Refining Trona to Commercial Products
- R. Frint, Evolution of Wyoming Soda Ash Processes
- D. Scriven, Western States Mining Consultants, Trona Tailings Disposal Methods
- P. Harben, P.W. Harben Inc., and C. Raleigh, Chem-Mineral Marketing Services, Soda Ash Goes Global for Growth
- T. Whiteside, Harriman Chemsult Ltd., London, Developments in the European Soda Ash Market 1990-1996
- B. Rischmiller, Brunner Mond & Co., Soda Ash-A European Producer's Perspective
- C. Watts-Jones, Chem Systems, The Soda Ash Industries of Russia and the Ukraine
- J. Chegwidden, Roskill Information Services, Asian Soda Ash Markets
- R. Shamel, Consulting Resources Corp. The Role of Soda Ash in the Chloralkali Family of Chemicals

Special luncheon and dinner presentations by:

Mr. D. George Harris, President, Harris Chemical Group

Mr. John Wold, President Wold Trona Co., Inc., A New Entrant's Perspective of the Wyoming Soda Ash Industry Professor Donald Garrett, Origin of the Wyoming Trona Deposits

Poster Sessions

- S. Wiig, U.S. Bureau of Land Management and J. Dyni, U.S. Geological Survey, Trona Resources of Wyoming
- N. Brown, Union Pacific Resources, Computer Modeling of Trona Reserves
- P. Boni, Univ. of Colorado, The Geology of Bed 17 in the Solvay Mine

Union Pacific Resources, The Trona Story - A 15-minute video

Sweetwater County Historical Museum, Mobile trona display

Lincoln Middle School, Trona on the internet - computer demonstration of accessing trona information on the internet.

Field Trips

- Trip 1: Underground tour of trona mine(s), Field trip leader Terry Leigh, Tg Soda Ash, Inc.
- Trip 2: Surface tour of a soda ash refinery(s)
- Trip 3: Outcrops of trona-bearing rocks of the Green River Formation, Bill Culbertson, U.S. Geological Survey

Additional papers and poster sessions will be announced in upcoming announcements. (This revision 2/26/97)

1st International Soda Ash Conference

Theme: Utilization of natural resources of sodium carbonate into the 21st century June 10-12, 1997, Western Wyoming Community College - Rock Springs, Wyoming Sponsored by:

U. S. Geological Survey, U. S. Bureau of Land Management, Wyoming State Geological Survey Coordinated by: University of Wyoming Office of Conferences and Institutes

A significant part of the expanding world market for soda ash comes from the trona district in southwestern Wyoming in the Western United States. Five mines in the district produce as much as 16.5 million metric tons of trona per year from underground mines reached by vertical shafts at depths ranging from 250 to 500 meters below the surface. About nine million tons of soda ash are produced yearly of which about one-third is exported to other countries.

The First International Soda Ash Conference (ISAC) sponsored by the U. S. Geological Survey, the Bureau of Land Management, and the Wyoming State Geological Survey is being held at Rock Springs, Wyoming, June 10-12, 1997 close to the trona district. The broadly based conference will include some of the world's leading experts of the soda ash industry who will be presenting papers on the geology, mining, processing, transportation, and marketing of sodium carbonate deposits. Although the Wyoming trona district will be emphasized, papers on natural deposits of sodium carbonate elsewhere in the world are included.

Two days of papers and poster sessions are planned, followed by a third day of field trips, including visits to a soda ash processing plant and underground workings at one of the trona mines, and a geology excursion to examine nearby outcrops of the trona-bearing rocks of the Green River Formation.

- •For information regarding program content: Dennis Kostick, USGS, Reston, VA (703)648-7715; dkostick@usgs.gov John Dyni, USGS, Denver, CO, (303)236-5544; jdyni@usgs.gov Ray Harris, WSGS, Laramie, WY, (307)766-2286; ray_harris@wsgs.uwyo.edu
- For registration information: UW Conference Office, 1-800-448-7801, ext. 2 or (307)766-2124.

Conference information is also available on the U.S. Geological Survey Web Site: http://minerals.er.usgs.gov/minerals/pubs/commodity/soda_ash/isac.html

General Information

- What: First International Soda Ash Conference
- •When: June 10-12, 1997;

Arrival and Registration: Mon, June 9, 1800-2100 hours at the *Holiday Inn*, 1675 Sunset Dr., Rock Springs, WY. Reception: 1900-2200 hours at the *Holiday Inn*.

• Where: Western Wyoming Community College, Lecture Hall 1302 (all paper presentations and posters)

- **Publication:** The Wyoming Geological Survey will publish the conference papers in an ISAC Proceedings Volume which will be priced later.
- •Conference Registration: Please register before May 15, 1997: Registration fee on/before May 15-\$150; after May 15 add \$50. The registration fee includes meeting, Tuesday evening banquet at the Holiday Inn on June 10, two lunches and breaks.
- Cancellation Policy: Cancellations received in writing on/before June 5, 1997 will be assessed a \$50 administrative fee. There will be no refunds for cancellations received after June 5, 1997.
- Fields Trips: Field trips will run concurrently, so please indicate your choice of trip on the registration form. (Each trip will leave the Holiday Inn at 0830 and return about 1530 hours. A minimum of 12 persons is required for each trip, otherwise, the trip may be canceled.)

<u>Trip 1.</u> Visit to the underground workings at one of the trona mines.

<u>Trip 2.</u> Visit to the soda ash processing plant at one of the trona mines.

<u>Trip 3.</u> Outcrop of trona-bearing rocks of the Green River Formation. Participants will examine rocks of the Wilkins Peak Member on the east side of the Green River basin.

•Accommodations: Western Wyoming College: \$20-Single; \$10/person-Double (Rates are per night. Add \$3.50/person for linens and towels if needed. See registration form.)

Holiday Inn: A block of rooms has been reserved for the

special conference rate of \$50/night for single or double room. Call (307)382-9200 by May 15 to make your reservations. Be sure to mention the ISAC/Trona conference.

Comfort Inn: Phone: (307)382-9490 LaQuinta: Phone: (307)362-1770

• Sightseeing: For information about sightseeing in the area or visiting Grand Teton and Yellowstone National Parks, contact the Rock Springs Chamber of Commerce at:

Phone: (307)362-3771 Fax: (307)362-3838

E-mail: rschamber@wyoming.com

1st International Soda Ash Conference Registration Form

Please register by May 15, 1997 (One registration per form, form may be duplicated)

Name	
Organization/Affiliation	
Address	
City/State/Zip	
Daytime Phone	
Fa <u>x</u>	
e-mail	
☐ The University of Wyoming is committed to making this workshop accessible to all and require accommodation to participate in this activity, please check here. You will Office of Conferences and Institutes to discuss your specific needs.	_
Healthy menu options are included, please check here if you prefer exclusively vegeta	rian meals.□
Roommate name for double room in WWCC residence hall: (MUST BE BY MUTU FORMS SUBMITTED TOGETHER OR YOUR ROOMMATE WILL BE ASSIGN	
Check which nights you will be staying. 9□ 10□ 11□ 12□ Fees: includes reception on Mon., Tue. Evening banquet, 2 lunches & refreshment by Registration: on or before May 15, 1997	150\$ 50\$
Make check payable to University of Wyoming Mail check and registration form to: Conference & Institutes, P.O. Box 3972, Laramie, WY 82071-3972 For information call: (307)766-2124; 1-800-448-7801, ext. 2; FAX: (307)766-391-E-mail: rebecca@uwyo.edu (Registrations cannot be accepted via E-mail.)	4;
To register by phone or FAX you must use a VISA/MasterCard/American Expi	ress#
Credit Cord Name and #	Evn Date

 ${\it TABLE~1}\\ {\it SALIENT~SODA~ASH~AND~NATURAL~SODIUM~SULFATE~STATISTICS~1/}$

	Soda asl	1	Natural sodium sulfate (Metric tons)			
	(Thousand meta	ric tons)				
	,	Ending		Ending		
Period	Production 2/	stocks	Production	stocks		
1995:						
December	907	306	26,300	16,400		
Total	10,100	XX	327,000	XX		
1996:						
January	762 r/	287	26,800	18,200		
February	814 r/	329	28,700	18,000		
March	- 789 r/	257	32,400	20,700		
April	855 r/	215	24,200	23,400		
May	876 r/	260	15,500	11,300		
June	885 r/	284	26,400	14,700		
July	850 r/	296	21,500 r/	12,300		
August	847 r/	264	24,100	15,700		
September	857 r/	223	26,000	16,400		
October	909 r/	290 3/	26,400 r/	18,500 r/		
November	- 859 r/	285	24,100	14,300		
December	866	271	29,500	19,500		
Total	10,200 r/	XX	306,000 r/	XX		
1997:						
January	866	326 e/	24,800	15,700		

e/Estimated. r/ Revised. XX Not applicable.

 ${\bf TABLE~2} \\ {\bf U.S.~EXPORTS~OF~SODA~ASH~AND~SODIUM~SULFATE~1/}$

(Metric tons)

					Disodiun	n Sulfate		
	Disodium carbonate		Salt Cake		Oth	ner	Total	
	Quantity							
	(thousand	Value 2/		Value 2/		Value 2/		Value 2/
Period	metric tons)	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)
1995:								
December	286	36,300	10,400	793	192	84	10,600	877
Total	3,570	445,000	59,500	4,860	6,910	2,390	66,400	7,250
1996: 3/								
January	300	38,700	4,060	317	108	43	4,160	360
February	314	42,100	14,000	1,040	212	88	14,200	1,130
March	270	35,900	2,000	172	2,350	576	4,340	748
April	349	45,300	8,260	646	31	16	8,290	662
May	217	29,000	104	17	63	38	167	55
June	337	43,800	13,300	1,290	43	17	13,400	1,310
July	315	42,000	12,500	695	29	20	12,600	715
August	392	51,100	2,440	189	6,620	956	9,060	1,150
September	329	44,400	1,690	151	23	8	1,710	159
October	392	53,600	2,060	210	119	679	2,180	889
November	255	34,800	1,190	140	108	545	1,300	685
December	367	47,700	14,300	1,250	103	36	14,400	1,290
Total	3,840	508,000	75,900	6,120	9,810	3,020	85,700	9,140

^{1/} Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census, as adjusted by the U.S. Geological Survey, using Journal of Commerce trade data and information.

^{1/} Data are rounded to three significant digits; may not add to totals shown.

^{2/} Production data includes soda ash equivalent from soda liquors only. Soda ash equivalent from mine water is not included. Soda liquors for the current year 1997 are withheld to avoid disclosing company proprietary data.

^{3/} Because of previously unreported inventory in remote locations by one producer, ending stocks are somewhat higher than the level of prior months.

 $^{2/\}operatorname{Free}$ alongside ship (f.a.s.) value at U.S. ports.

^{3/} January 1997 data not available at time of publication.

TABLE 3 U.S. EXPORTS OF SODA ASH BY COUNTRY, 1996 $1\!/$

(Metric tons)

													Total	% of
Country	January	February	March	April	May	June	July	August	September	October	November	December	Quantity	total
Argentina	13,000		8,950				22,200		17,100	14,100	6,550	9,790	91,700	2
Australia			5,000				5,000	25,100		5,070		16,200	56,300	1
Belgium	6,900	5,610		27,600		15,000		6,010			67	11,100	72,300	2
Bolivia	2,500		1,100				1,010					1,400	6,010	
Brazil	34	42,300	17,800	7,050			5,040	28,000		52,400	24,000	32,800	209,000	5
Canada	16,700	21,300	23,900	14,100	17,300	20,200	26,900	21,700	15,200	19,900	21,800	16,700	236,000	6
Chile	21,900		19,100		17,200		24,600		17,200			22,700	123,000	3
China	13,000		8,000	4,970	4,500		4,500			7,500		3,000	45,500	1
Colombia	11,700	11,100		11,600		11,000	10,900		11,500	11,800	9,120	9,580	98,400	3
Costa Rica				1					4,000				4,000	
Croatia				8,840		5,870		7,690		11,600			34,000	1
Dominican Republic		2,160							1,430				3,590	
Ecuador									5,960				5,960	
El Salvador							1,000					1,500	2,500	
Germany			124		42					778			944	
Ghana							16						16	
Guatemala		5	3,500				3,300	(2/)	4,920			3,320	15,000	
Honduras							200						200	
Hong Kong			40		63	71							174	
India								23,000					23,000	1
Indonesia	23,500	25,500	44,400	42,100	23,600	35,100	26,500	40,100	32,500	52,100	68,200		414,000	11
Ireland	383	,			392	·	583	583	·	16	·		1,960	
Israel			8,000					7,910			6,710		22,600	1
Jamaica	2,000	29					1,990	·		11	·		4,030	
Japan	7,900	36,400		39,600	11,600	46,400	27,700	26,400	38,600	39,000	7,000	46,100	327,000	9
Korea, Republic of	15,100	22,700	5,290	43,600	27,100	30,800	54,800	22,700	21,900	36,400	12,200	18,300	311,000	8
Malaysia	10,500			8,800	12,500		9,920	12,400	15,700			6,460	76,300	2
Mexico	33,200	39,300	34,600	32,700	26,800	34,100	28,100	30,900	27,100	28,300	19,400	32,600	367,000	10
Netherlands			2			101			19				122	
New Zealand	40	20	40	7,070		20	4,020	7,000	40	137	81	101	18,600	
Nigeria										4,940			4,940	
Panama					2,000							2,090	4,090	
Peru	4,020		4.140		6,230				5.050			4,730	24,200	1
Philippines	12,300	12,300	10,000		11,300	13,800		13,700		20,800			94,000	2
Poland									15,000				15,000	
Russia									299				299	
Saudi Arabia	18,000			17,500	3,790	22,000	22,000	22,000		6,760		21,800	134,000	3
Singapore	,			4,970		,	,	3,000	4,000			5,000	17,000	
South Africa		24,500	27,100	25,000		25,100			22,000	20,000		20,000	164,000	4
Spain	11,400		,	,	16,000	9,300		5,960	22,500	,	13,100	,	78,300	2
Sweden				32					36				68	
Taiwan	21,700	13,600	21,200	12,900	15,500		22,600	17,900	20,500	15,600	7,460	13,000	182,000	5
Thailand	23,000	28,000	25,000	8,300	21,500	20,500	12,300	22,800	4,800	24,700	51,800	41,800	285,000	7
Trinidad and Tobago	,	,	1,360		,	,	,	3,080			2,930		7,370	
Turkey				7,310				7,000			4,970		19,300	1
United Arab Emirates								5,000				5,000	10.000	
United Kingdom		1					1						2	
Uruguay			1,000									1,390	2,390	
Uzbekistan			7										2,370	
Venezuela	30,800	29,200		24,500		47,900		32,400	21,500	20,000		21,100	227,000	6
Total	300,000	314,000	270,000	349,000	217,000	337,000	315,000	392,000	329,000	392,000	255,000	367,000	3.840.000	100
101111	500,000	511,000	2,0,000	517,000	217,000	227,000	515,000	372,000	227,000	272,000	200,000	307,000	2,010,000	

^{1/} Data are rounded to three significant digits; may not add to totals shown. 2/ Less than 1/2 unit.

Source: Bureau of the Census.

 ${\bf TABLE~4} \\ {\bf U.S.~IMPORTS~OF~SODA~ASH~AND~SODIUM~SULFATE~1/}$

(Metric tons)

	Disodiun	Disodium carbonate		Saltcake 2/		ther	Total		
		Value 3/		Value 3/		Value 3/		Value 3/	
Period	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	
1995:									
December	6,480	891	12,400	1,180	3,620	289	16,000	1,470	
Total	82,700	12,000	134,000	12,500	72,600	5,250	206,000	17,700	
1996: 4/									
January	8,130	1,140	12,000	1,120	4,070	276	16,000	1,390	
February	7,400	1,050	10,300	966	3,260	279	13,600	1,250	
March	9,460	1,330	13,500	1,150	2,920	220	16,400	1,370	
April	8,510	1,200	11,200	993	1,950	186	13,100	1,180	
May	8,440	1,130	13,700	1,330	1,690	184	15,400	1,510	
June	8,770	1,200	14,400	1,400	2,250	342	16,600	1,750	
July	8,630	1,180	9,940	987	3,800	405	13,700	1,390	
August	8,310	1,140	11,700	1,110	2,940	270	14,600	1,380	
September	10,500	1,440	14,400	1,400	1,550	193	15,900	1,590	
October	9,340	1,260	12,200	1,200	1,300	163	13,500	1,360	
November	10,000	1,380	11,600	1,120	1,460	173	13,000	1,300	
December	9,450	1,290	12,800	1,320	2,270	292	15,100	1,610	
Total	107,000	14,700	148,000	14,100	29,400	2,980	177,000	17,100	

 $^{1/\,\}mbox{Data}$ are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

 ${\bf TABLE~5} \\ {\bf U.~S.~APPARENT~CONSUMPTION~OF~SODA~ASH~1/}$

(Metric tons)

				Net stock	ζ.	Apparent
Period	Production	Imports	Exports	Increase or	Decrease	consumption 2/
1995:						
December	907,000	6,480	286,000	52,000		575,000
Total	10,100,000	82,700	3,570,000	103,000		6,510,000
1996:	-					
January	762,000 r/	8,130	300,000		19,000	490,000 r/
February	814,000 r/	7,400	314,000	42,000		465,000 r/
March	789,000 r/	9,460	270,000		72,000	601,000 r/
April	855,000 r/	8,510	349,000		42,000	557,000 r/
May	876,000 r/	8,440	217,000	45,000		622,000 r/
June	885,000 r/	8,770	337,000	24,000		532,000 r/
July	850,000 r/	8,630	315,000	12,000		531,000 r/
August	847,000 r/	8,310	392,000		32,000	495,000 r/
September	857,000 r/	10,500	329,000		41,000	580,000 r/
October	909,000 r/	9,340	392,000	67,000		460,000 r/
November	859,000 r/	10,000	255,000		5,000	619,000 r/
December	866,000	9,450	367,000		14,000	522,000
Total	10,200,000 r/	107,000	3,840,000		35,000	6,470,000 r/
1997:						
January	866,000	NA	NA	55,000 e/		NA

e/Estimate. r/Revised. NA Not available.

^{2/} Includes Glauber's salt.

^{3/} Customs, insurance, and freight (c.i.f) value at U.S. ports.

^{4/} January 1997 data not available at time of publication.

 $^{1/\,\}mbox{Data}$ are rounded to three significant digits; may not add to totals shown.

^{2/} Production plus imports minus exports plus or minus stock changes.

$\label{eq:table 6} \text{U. S. PRODUCTION OF SODIUM COMPOUNDS,}$ BY MONTH 1/ IN 1996

(Metric tons)

	Caustic	Wyoming
	Soda 2/	Trona
January	14,000	1,480,000
February	17,000	1,360,000
March	18,900	1,360,000 r/
April	16,900 r/	1,320,000 r/
May	17,600	1,370,000
June	20,400	1,250,000 r/
July	20,000	1,430,000
August	17,600	1,320,000 r/
September	22,000	1,350,000
October	20,400	1,460,000
November	18,900	1,270,000
December	18,500	1,330,000
Total	222,000	16,300,000
Total (1995)	184,000	16,500,000

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

 $^{2/\} As\ soda$ ash equivalent.